

Energy Transformations

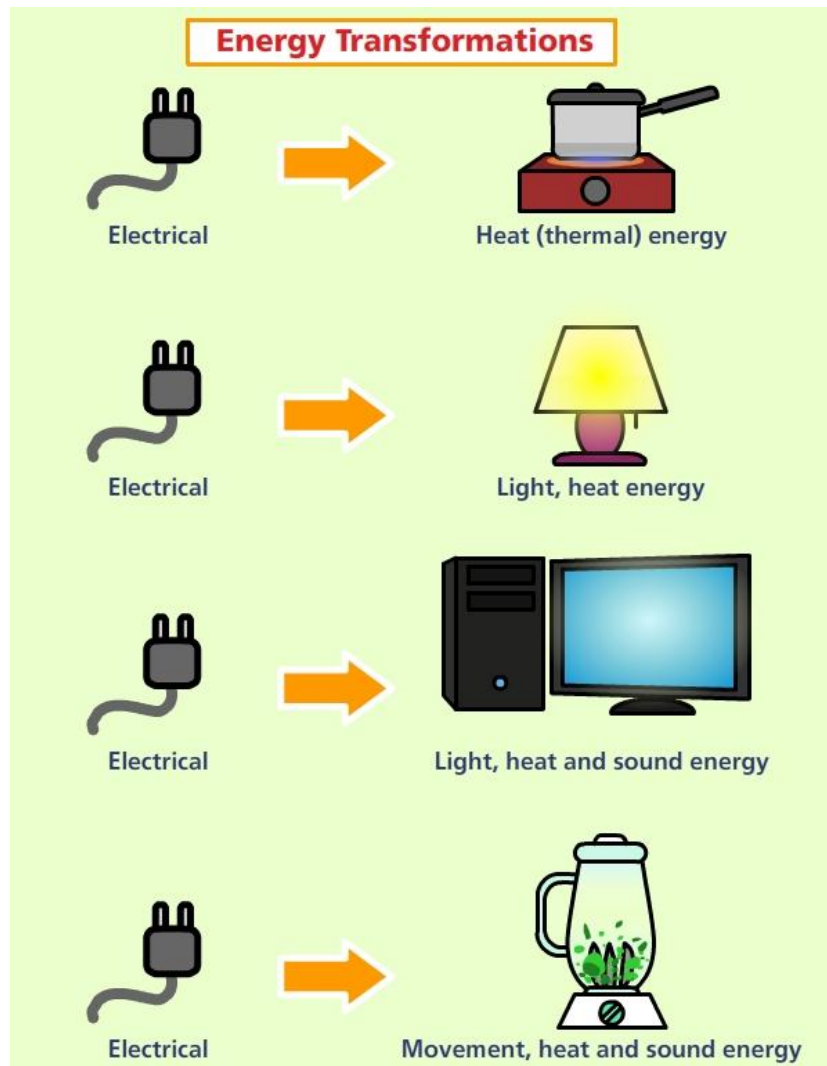
Notes

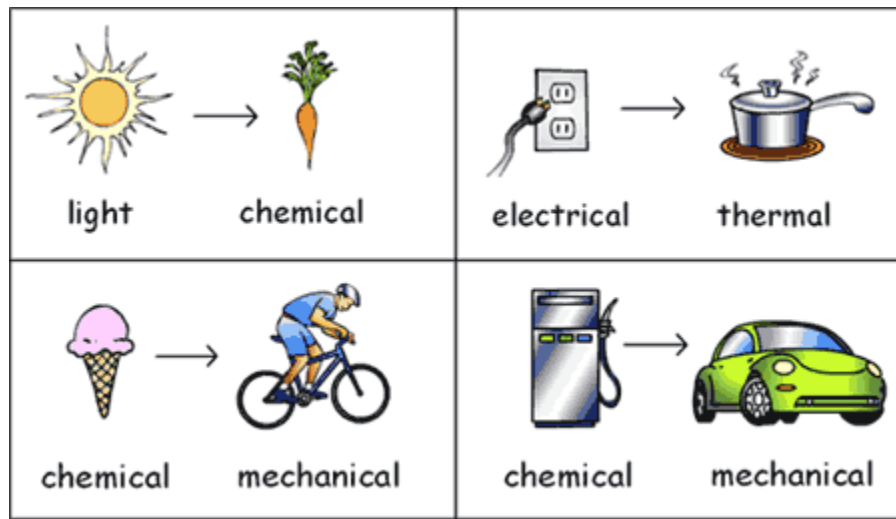
Energy

can change forms

Examples:

- electrical → thermal, light, sound
- potential → kinetic
- chemical → sound, light, thermal, kinetic





Examples of energy transformations

•toaster (electrical → thermal, light)



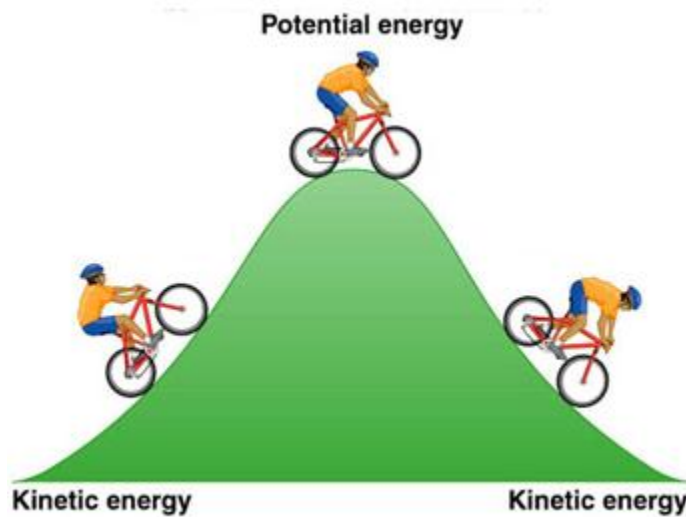
•radio (electrical → sound)



- flashlight (chemical \rightarrow light)



- bicycle rider (potential \rightarrow kinetic)



Heat

the movement of thermal energy
from one object to another

<http://www.brainpop.com/science/energy/heat/>

Energy Transformations

Check Your Understanding

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1. Name three kinds of energy from the pictures.

Three kinds of energy from the pictures are _____ from _____, _____ from _____, and _____ from _____.

2. What energy change occurs in a radio?

A radio changes _____ energy into _____ energy.

3. What are some ways that energy changes form?

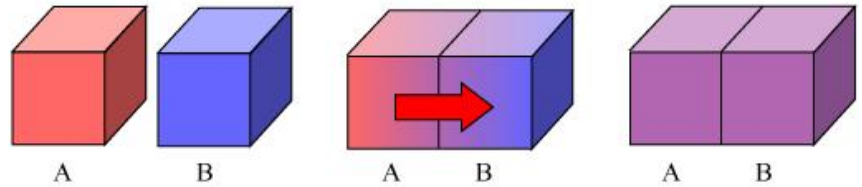
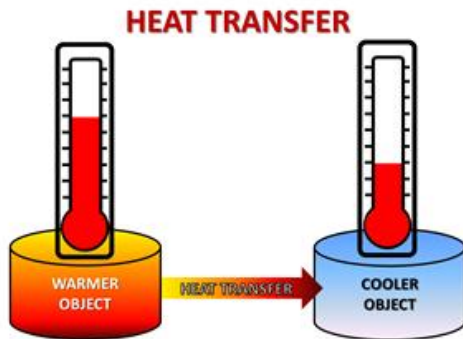
In a _____, _____ energy changes to _____ energy. In a _____, _____ energy changes to _____ energy.

4. What form of energy do you use most in your daily activities? How does this energy change when you use it?

The energy I use most in my daily activities is _____. This energy changes to _____ energy when _____.

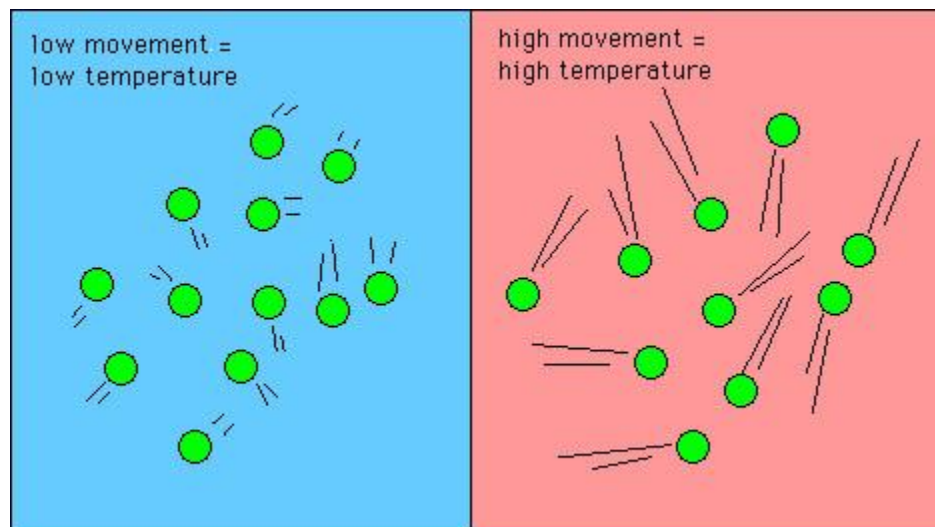
Heat

the transfer of thermal energy from warmer matter to cooler matter



Temperature

a measure of how fast particles are moving



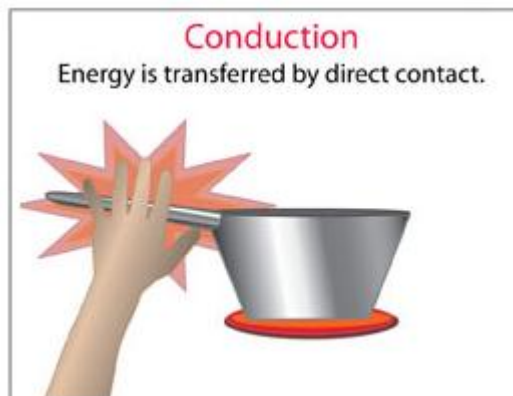
Three types of heat transfer

- conduction
- convection
- radiation

Conduction

the transfer of heat when fast-moving particles hit slower-moving particles

It is transfer by direct contact



http://www.teachersdomain.org/asset/lsp07_int_heattransfer/

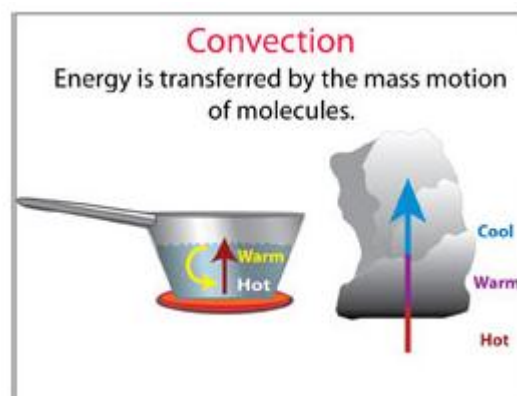
Convection

the flow of heat from one place to another by movement in a liquid or gas

The heat moves in a circular pattern

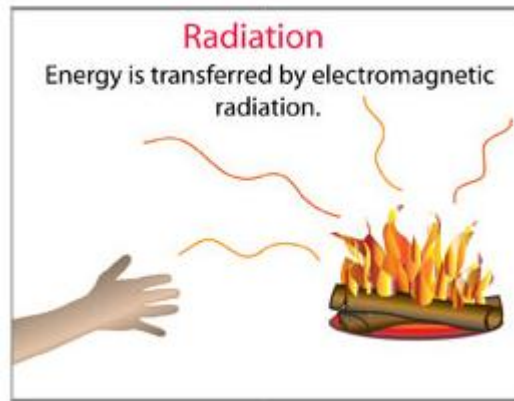
Warm water/air rises (less dense)

Cool water/air sinks (more dense)

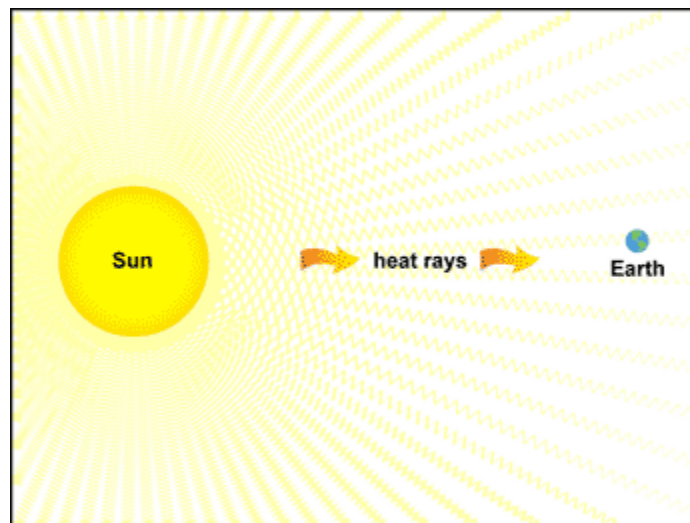


Radiation

heat transfer in waves



Energy from the sun travels to the Earth by radiation



Energy Transformations

Science Skill

Visualizing

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1. What are the parts of the system in the drawing?

The parts of the system in the drawing are the _____ , _____ , and _____ .

2. How does thermal energy move through the water?

Thermal energy moves through the water by _____ .

3. How does thermal energy move from the hot plate to the pan? Explain.

Thermal energy moves from the hot plate to the pan by _____ , because _____ .

Energy

can change from one form to another

Can move from place to place

CANNOT be created or destroyed

Law of conservation of energy

law that states energy cannot be created or destroyed

The total energy always stays the same

Energy Transformations

Check Your Understanding

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1. What is heat? What is temperature?

*Heat is _____ .
Temperature is _____ .*

2. What are the three ways thermal energy can move?

The three ways thermal energy can move is by _____ , _____ , and _____ .

3. What is the law of conservation of energy?

The law of conservation of energy states that _____ .

4. If you put a hot object in a bowl of ice, is the thermal energy destroyed? How do you know?

*If you put a hot object in a bowl of ice, the thermal energy is _____ because _____ .
Instead, the thermal energy went from _____ to _____ .*

